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ABSTRACT

This paper looks at nine states--California, Florida, Illinois, New York, Nebraska, Texas, Vermont, Virginia, and Washington--in an effort to find common themes in the processes and outcomes of post-divestiture state telecommunications policies. The possible consequences of current state policies are then discussed, and it is suggested that changes in these policies, which have traditionally favored competition, may lead to two classes of telecommunications infrastructure for the country: (1) an advanced infrastructure available primarily to those who can pay for access, such as large business users; and (2) a less advanced infrastructure, available to and intended for small users such as residential customers and small businesses. It is argued that state policy has often been designed to encourage competition so as to minimize the flight of large users for the local network. Concluding that the encouragement of competition is both sound and inevitable, the paper advocates the use of competition as the point of departure for telecommunications policy, not as an end in itself. (26-item bibliography) (EW)

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IMPLICATIONS OF POST-DIVESTITURE STATE TELECOMMUNICATIONS POLICY

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INTRODUCTION

Until recently, the most lively activity in telecommunications policy in this country occurred at the federal level. Over the past three decades, the Federal Communications Commission pursued policy encouraging competition in the telecommunications industry. At the same time, the Justice Department, motivated more by antitrust concerns than notions of economic efficiency, was bent on breaking up the Bell System monopoly that for so long met the nation's communications needs. Congress, for the most part, stood on the sidelines, unwilling to provide direction to the increasingly fractious telecommunications policy process. Throughout all this, state regulation remained a relatively peaceful affair. The presence of the Bell monopoly enabled state regulators to continue traditional rate of return regulation and preserve pricing policies which kept locak rates low.

In recent years, state telecommunications policy has changed dramatically. Although it is tempting to attribute most, if not all, of that change to the divestiture of AT&T, to do so is to neglect part of the story. Recent state initiatives, although undoubtedly motivated by divestiture, have also been driven by the economic problems most states experienced in the late 1970s and early 1980s. The declining competitiveness of this country's manufacturing base prompted many states to undertake a series of new economic development initiatives.[1] Few of these initiatives were directly concerned with telecommunications, but economic

development had certainly become a prominent item within most states. Even though economic development remained ill-defined in many states and came to mean different things to different people, policymakers were not bashful about using economic development to justify new initiatives. The telecommunications policy debate was not immune from the economic development rhetoric.

This paper will look at nine states--California, Florida, Nebraska, New York, Illinois, Texas, Vermont, Virginia, and Washington--in an effort to find common themes in the processes and outcomes of post-divestiture state telecommunications policy.[2] States' responses range from legislation mandating deregulation and regulatory reform to public and private initiatives outside the regulatory framework aimed at using telecommunications to enhance economic growth. States have also undertaken new initiatives as users of telecommunications to deliver services and improve government operations. The context of these initiatives has been the growing importance of telecommunications to the economy. We will examine some of the implications of the various state responses for the nation's telecommunications network. The various state telecommunications policies cannot be considered in isolation from one another. The whole of state telecommunications policy is likely to be greater than the sum of its parts. Actions taken to shape the network in one state can affect the actions other states take to shape their networks. Thus, among the many implications of post-divestiture

telecommunications policy, is the possibility for regional cooperation among states in formulating policy.

After review of the nine states in our study, we will conclude with a discussion of the possible consequences of present state policy. Our contention will be that state policy action since divestiture, which has largely favored competition, may lead to two classes of telecommunications infrastructure for the country. One will be advanced and available primarily to those who can pay for access--mainly large business users. The other will be less advanced and available to and intended for small users--residential customers and small businesses. We find that state policy has often been defensive in nature; to encourage competition so as to minimize the flight of large users from the local network. Yet the encouragement of competition by the states is both sound and inevitable. Traditional regulation will not solve the problems of providing access to new telecommunications technologies to all users. The challenge for states is to find new policy tools to ensure universal access to telecommunications technologies. Thus competition is not, like some policymakers seem to think, the end of telecommunications policy for states, but instead, a point of departure.

THE TRADITIONAL STATE ROLE

The state role in telecommunications policy up to and immediately after divestiture was limited to regulation of telephone service as a natural monopoly. State regulation of the telephone

industry originated in the early 1900s, an outgrowth of the nation's increasing concern with the growing size of business enterprises. Rather than oppose the tide of regulation, the Bell system sought accommodation with state regulators. Indeed, Bell used regulation as a strategy to extend its monopoly. In exchange for submitting to state-imposed limits on Bell system profits, Bell's monopoly status was preserved by state regulators. Bell would manage the telephone system from end-to-end; there would be no foreign attachments allowed on Bell-made telephone sets. The Bell system argued that the goal of universal service--affordable and reliable service--could be ensured only if Bell had complete control of the network.[3] As these goals were agreeable to regulators and customers alike, state regulation was a relatively peaceful affair.

Until federal regulators started encouraging competition in the 1970s, the goals of federal and state telecommunications policy were the same--universal service. The federal government's encouragement of competition, which of course culminated in divestiture, radically altered the federal-state interaction. Few states had been encouraging competition simply because they had little interest in doing so; competition had the potential for raising local rates. Not until divestiture occurred did most states begin to consider what degree of competition they would allow.

By some accounts states were completely unprepared for the policy implications of divestiture because of complacency and

ignorance of microeconomics.[4] While our study concurs that the BOCs were quite skillful in seizing the policy initiative in some states, our study does not agree with grim assessments of state policymakers' competence. In Illinois, for example, regulators developed the Market Service Area (MSA) concept before LATAs were created as a way to promote competition. Because there were more MSAs than there were likely to be LATAs, inter-MSA competition would result in a larger long distance market (and thus be more attractive for entrants) than the LATA framework would. Florida, for reasons similar to Illinois', developed a plan under which there would be more LATAs so as to encourage interLATA competition. As an interim measure, until full intraLATA competition was deemed appropriate, Florida divided its 10 LATAs into 22 Equal Access Exchange Areas (EAEA). Interexchange carriers compete freely in the interEAEA market, but intraEAEA competition is limited.

One way in which states did respond poorly to divestiture was with respect to rate increases. State regulators feared that divestiture would harm the financial health of the BOCs, thereby harming network quality and driving local rates upward. This fear caused state regulators to grant the BOCs much of the large increases in basic rates they requested after divestiture.[5] In rate cases filed just prior to or immediately after divestiture, BOCs requested increases in basic rates ranging from 27 to 200 percent, approximately 40 percent of which were granted.[6] The rate situation has become considerably more stable in the states

since divestiture, permitting policymakers to view telecommunications policy in a new light.

THE NEW STATE ROLE

Because of divestiture, state activism in telecommunications policy differs markedly from renewed state activism in other policy areas, such as economic development and education. There was no perception within states that something was wrong with the price or quality of telecommunications services. There was, in contrast, a perception among policymakers that something was wrong with the economy and educational system. In telecommunications, states reacted to an external event--divestiture--generated purely by the federal government. And their reaction to divestiture, as we will develop in our discussion of legislative initiatives, was largely defensive; states sought to promote competition because they felt it would minimize increases in residential telephone rates.

Yet the new state role which divestiture generated has resulted in a secondary set of policy initiatives aimed at more than simply minimizing bypass. These have been initiatives linking telecommunications to economic development. In some states (Nebraska, Illinois), policymakers saw competition as sufficient to maximize the economic development potential of telecommunications. In some cases (Texas), the term "economic development" was invoked in debates about regulatory reform in only the vaguest (one might argue meaningless) way. In still

other states (New York), specific initiatives have sought to use the telecommunications infrastructure to stimulate economic growth.

With the different perceptions of the bypass threat and different perceptions of the economic benefits of competition, state telecommunications policy initiatives vary greatly. The approaches found in our nine states fall into three categories. The first two, new legislation and targeted initiatives, relate to economic development. Most of the new telecommunications legislation has eased the regulatory burdens of telecommunications companies in the hope of encouraging economic growth through improved economic efficiency. The more targeted initiatives linking telecommunications and economic growth have been joint public and private projects.

The third category of state initiatives, while not related to the new state interest in economic development, is nonetheless an outgrowth of the availability of new telecommunications technologies. These initiatives involve the state role as a large user of telecommunications services. Many states have recently purchased or are in the process of purchasing new telecommunications systems. States are using these new systems not only to improve their efficiency of operations but also the quality of service delivery.

A pattern we have identified in our study is that economic crisis helped precipitate state interest in using the telecommunications infrastructure to stimulate economic growth.

In states experiencing substantial economic crisis (Nebraska, New York) there has been explicit recognition of the importance of the telecommunications infrastructure. In states largely unaffected by economic crisis (Florida and, until recently, Texas and California), the recognition has not been reflected or is only beginning to be reflected in policy.

It should be pointed out, however, that the states selected for study were chosen because they were in some sense innovative. What constitutes innovative was deliberately left broad. The study sought out states with a tradition of activism in economic development (New York) or with activism originating in public utility commissions (California, Vermont) or legislatures (Nebraska, Illinois, Washington). We also sought out states with variation in size, location, and types of economy. Thus, while the limited number of states studied makes broad generalizations tenuous, the diversity of the states selected yields useful insights about the direction of state telecommunications policy.

New Legislation

The rationale behind most of the legislative initiatives undertaken by the states studied was to give regulatory commissions policy guidance in the post-divestiture environment. Most public utility commissions (PUCs) were charged only with ensuring reasonable rates for the public and a fair return for telephone companies. They had neither the authority nor, in some cases, the political will to respond to changing

telecommunications markets. PUCs usually did not have legislative mandates to determine criteria by which services would be considered competitive enough to warrant deregulation or regulatory flexibility.

Those states disposed to permitting more competition in the industry--Nebraska, Illinois, Virginia, Vermont, Washington, and Texas--have all passed legislation granting some regulatory relief to telecommunications companies. Two forces motivated these states to permit greater competition in telecommunications markets. The first was defensive. States feared that if Bell Operating Companies and large independents were not allowed to compete with new providers in serving large business users, these users would bypass the local networks to reduce their telecommunications costs. An exodus of large users would result in an increase in rates for residential customers. Even though more competitive pricing would also increase residential rates, most states felt that encouraging competition immediately would keep increases in residential rates to a minimum in the long-term.

The second force motivating legislation was offensive. State policymakers felt that promoting competition would increase the availability of new services and facilitate the dissemination of new technologies within their states. This would give their states an economic advantage in an economy growing more reliant on the transmission of information. This force was prominent on the agendas of Nebraska, Illinois, and Vermont in forming their

legislation.

Among the trade-offs facing states in drafting legislation were these: How should the needs of established providers to compete with new entrants (and thus reduce the chances of bypass) be balanced with the substantial market power and potential for monopoly abuse that these providers still possess? Could this be done while preserving universal access to telephone service? How well legislators articulated and weighed these considerations differed from state to state.

Nebraska

Nebraska has taken the most drastic step, passing legislation in 1987 completely deregulating local and interexchange carriers in the hope that deregulation would bring economic benefits to the state. The process by which Nebraska's legislation (L.B. 835) was passed does not reflect a careful weighing of the issues identified above. The bill was drafted by the industry and introduced by a legislator sympathetic to industry interests. L.B. 835's sponsor admits that the bill was "strong-armed" through the legislature with a number of amendments being added to it on the floor that were not studied in great detail. The body best able to provide insight into market conditions in the state, the Nebraska Public Service Commission, was shut out of the process and strongly opposed the bill. Although the bill is certainly a great success story for deregulation, the strong industry presence and the exclusion of PSC expertise from the

process do not make it a model for other states. The state's depressed economy and policymakers' perception that they had to take steps to revive it no doubt contributed to this hasty policy response. Although there is no evidence of economic benefits of the legislation as yet, the bill's proponent, former Governor Robert Kerrey, hoped deregulation would improve the state's business climate, stimulate innovation in the industry, and bring new telecommunications technologies to the state.[7]

Virginia

The policy process behind Virginia's deregulation of AT&T in 1984 was considerably more deliberate than Nebraska's. In Virginia, the State Corporation Commission had carefully monitored interexchange carrier activity prior to divestiture and had found AT&T's market share declining. The state's pro-business pro-competitive climate and weak consumer activity in telecommunications also aided the cause of deregulation.

Perhaps the greatest factors favoring deregulation were Virginia's growing economy (fueled by services) and cooperative style of political negotiating. The robust service economy, and its increasing demand for telecommunications services, was enough assurance for policymakers that competition would keep prices down. That has been the case since deregulation, although that may be due to AT&T's recognition that all eyes are on Virginia's deregulatory experiment. Any attempts by AT&T to use its market power to increase prices may create a serious backlash against

AT&T's attempts at deregulation elsewhere.

Illinois

The regulatory flexibility legislation passed in Illinois, the product of a study by a select House-Senate Committee on Telecommunications which drew on industry, regulatory, and academic expertise, was closely scrutinized before it was passed and is therefore somewhat more specific than Virginia's and Nebraska's legislation. One feature of the Illinois Universal Telephone Service Protection Act of 1985 which distinguishes it from other states' laws, and prior Illinois law, is its policy statement. This statement finds that competition can, in many instances, substitute for regulation and that consumer protection is the law's most important objective. Although some would argue that competition and consumer protection are incompatible goals, Illinois officials resolved the possible anomaly in propounding a "least worse off theory." Traditional regulation could serve to keep residential rates down through subsidies from business rates, they acknowledge, but ease of entry into the industry means that bypass of the local exchange would be inevitable. Ending cross-subsidies, they argue, will drive up local rates (in fact it has), but to a lesser degree than would occur if large users bypassed the local exchange in large numbers. Should competition fail to protect universal service, the bill requires that the legislature take some unspecified action to address the issue.

Thus the Illinois bill permits deregulation of services--both local and interexchange--if "reasonably available" alternatives are available to customers. Telecommunications companies can classify a service as competitive on their own initiative, and they must file a long-run marginal cost study to show that they are not pricing below cost. The commission can investigate the classification on its own motion, but cannot suspend the filing pending the investigation. The legislation is tailored so that companies compete in the market place, not before the commission in lengthy regulatory proceedings. The legislation seeks to introduce competition gradually to all telecommunications markets in Illinois. The state's strongly pro-competitive environment and the concern of consumer groups with high electric rates rather than telephone issues also facilitated the bill's passage.

Washington

The state of Washington passed the Regulatory Flexibility Act of 1985, two years after the legislature established a Joint Select Committee on Telecommunications to review telecommunications legislation. Washington's legislation bears striking similarities to Illinois'. Both are, of course, regulatory flexibility efforts and both place a priority on universal service. Both bills also seek to prevent cross-subsidization of noncompetitive services by competitive services. And both bills grant regulatory flexibility so that BOCs could maintain

financial health in a competitive environment in order to continue serving residential customers at reasonable rates. There are important differences in emphasis, however, which reflect the different political climates of the states.

In Washington, as in Illinois, classification of services as competitive is done once competition--defined as alternative services being "reasonably available" to customers--is present in markets. Unlike Illinois, Washington requires the commission to determine whether the classification is correct, giving Washington somewhat more regulatory oversight than Illinois. Washington also places relatively more emphasis on consumer protection than Illinois. The Washington commission's chair, Sharon Nelson, has proclaimed consumer protection to be the primary goal, whereas competition is the paramount goal in Illinois, notwithstanding the Illinois laws concern for consumer protection. An example of Washington's concern for the consumer is recent efforts in the legislature to ensure that there are no "telecommunications deserts" in the state (i.e. areas which are technologically backward in telecommunications).

One final element in the policy environment explains the different flavor of bills with the same ostensible purposes. That is the different Bell companies involved. Illinois Bell Telephone has a long tradition of innovation within the state; it has successfully provided state-of-the-art telecommunications services to the state before and after divestiture. Illinois Bell's relations with the state have historically been good.

Pacific Northwest Bell in Washington presents a different picture. Its parent company, US West, has emerged as one of the most aggressive Regional Bell Holding Companies since divestiture. Its strident claims that markets are competitive have aroused suspicion among state regulators, Sharon Nelson among them.[8] It is not surprising that Washington is more skeptical about claims of the economic benefits of competitive markets and thereby more stringent about granting regulatory flexibility.

Vermont

Vermont represents another deliberative legislative review of telecommunications regulation, but this time with an outcome far more radical than regulatory flexibility. Vermont has established "social contract regulation," a concept originated by former Public Service Board Chairman Louise McCarren in 1985 and embodied in legislation passed in 1987. The legislation, the product of a Telecommunications Study Committee formed in 1986, permits the negotiation of a contract between local exchange carriers and the Department of Public Service, subject to approval of the regulatory commission, the Public Service Board. In exchange for capping rates at their present level until 1989, New England Telephone (NET), the state's largest LEC, is granted flexibility in pricing and introduction of new services. The hope is that the social contract will enable the introduction of new technology to Vermont at a faster pace than elsewhere and

thus enhance economic growth. The legislation also declares affordable telephone rates a priority in order to preserve universal service and requires carriers to preserve service quality as part of the contract. Close monitoring of quality, it is thought, will protect consumers from possible telephone company abuse.

Many officials in Vermont do not believe that the social contract is transferable to other states. The small size of the state and the informal and cooperative political process, in their view, facilitated passage of the legislation. They are skeptical that larger states could muster such cooperation, particularly given the ongoing controversy surrounding the social contract in Vermont. Some have also argued that social contract pricing will succeed in Vermont because New England Telephone wants it to. NET can afford to forego rate increases in such a small state in the hope that other states will adopt such a system. With the cost of providing service falling, they argue, NET will reap sizable benefits in larger states that follow Vermont's lead.

The dynamic in Vermont represents something of a cross between Nebraska and Washington. In both Vermont and Nebraska, states small in population and relatively less well-off economically undertook bold initiatives aimed at fostering economic growth. The informal political processes of the states facilitated legislative risk-taking. Unlike Nebraska, and like Washington, Vermont studied the situation carefully before

acting. This yielded a result agreeable to most parties and relatively sensitive to consumer interests. As with Nebraska's Governor Kerrey, however, the presence of a strong advocate for a particular policy--in this case Louise McCarren--substantially affected the outcome.

Texas

Efforts to provide regulatory flexibility to local and interexchange carriers in Texas took on a much different character than elsewhere due to the adversarial nature of the state's political process. As in other states, arguments for less regulation were based on the rationale that increased flexibility for phone companies would, by mitigating the potential for bypass, enable them to provide basic service at low rates to residential customers. Unlike other states, legislation mandating regulatory flexibility was introduced in two bills, one pertaining to local exchange carriers, the other to interexchange carriers. Both bills, as in Nebraska, were introduced and strongly supported by the telecommunications industry.

In Texas, less study went into the development of telecommunications legislation than in Vermont, Washington, and Illinois. SB 229, providing a framework for deregulation of AT&T, and SB 444, granting regulatory flexibility to LECs, were both more products of political brokering in the halls of the legislature than detailed study by committees. As such, the legislative history of both bills is marked by contention and

acrimony among stakeholders rather than the consensus other states were able to muster over similar issues. This may well be due to the lack of deliberation and study prior to each bill's introduction.

The result were bills much less directive than legislation passed by other states. For example, SB 444, the bill to provide regulatory flexibility to LECs, originally contained a policy statement linking economic development to a technologically advanced telecommunications infrastructure. The bill also defined "competitive service" and directed the Texas PUC to consider competition as a factor in determining price and quality of service. These and other policy statements did not survive the legislative process because such statements were thought to constrict the PUC too much in dealing with such issues. This contrasts sharply with Illinois, which deliberately constricted its regulatory commission to conform to certain goals settled upon in a legislative study committee.

SB 229, in which AT&T sought deregulation, became a big business versus small business debate rather than a debate about the appropriate degree of regulatory flexibility for AT&T. This is due to the fact that AT&T aggressively sought complete deregulation, thereby putting some legislators on the defensive. Small interexchange carriers, especially Texas-based ClayDesta Communications, successfully capitalized on their political connections to thwart AT&T's deregulatory efforts. Consumer groups also generated a high level of public interest in the bill

and demanded that AT&T prove it no longer had monopoly power before it could be deregulated. In the end, SB 229 directed the PUC to assess the dominance of AT&T. Again, the legislature delegated to the regulatory commission more policymaking responsibility than other states.

In Texas aggressive industry interests caught the legislature unprepared (relative to other states in this study) to deal with the changing telecommunications industry. This resulted in a very contentious policy process, reflecting the political needs and strengths of the actors and little scrutiny of the issues. The legislation that finally emerged provided less policy direction than states which had studied the issues more carefully. None of this is to say that the policy process should not reflect the political needs and strengths of actors. In Texas, however, there was not the balance between political and substantive issues that other states exhibited. The result has been continued delegation of telecommunications policymaking to the PUC.

Evaluation and Recommendation

The pattern that emerges from states' legislative activity is clear: states which established legislative committees to study telecommunications passed legislation more responsive to the trade-offs identified at the start of this section--preserving universal service while ensuring rapid dissemination of new technologies. Legislation passed in those states--Washington,

Vermont, and, to a lesser extent, Illinois--successfully balanced consumer and industry needs. These states passed substantive regulatory reform legislation that was acceptable to all parties in the process. States which did not study the issue in such detail emerged with legislation either thought of as too responsive to industry needs (Nebraska and Virginia) or less responsive to telecommunication's importance to the state economy (Texas).

Rarely is a recommendation that policymakers establish a body to study an issue and build consensus greeted enthusiastically. Yet such bodies served several of the states in this study quite well because they helped build consensus and brought all parties into the policy process, rather than focusing on only industry interests or shutting out (as in Nebraska) the expertise of regulatory commissions.

Targeted Telecommunications and Economic Development Initiatives

The nine states in this study reveal only a few public economic development initiatives linked directly to telecommunications. Most of the purely public initiatives were the legislative ones discussed above. One factor limiting public initiatives is that telecommunications has traditionally been provided by the private sector with impressive results. There has been little need, as with roads and bridges, for the public sector to build the telecommunications infrastructure. Because of the large role of the private sector in telecommunications, a number of states have

relied on joint public and private efforts to use telecommunications to stimulate economic growth.

New York

The most ambitious joint public and private telecommunications and economic development initiative identified in this study is the Teleport in New York. The Teleport is both a telecommunications and real estate undertaking. The real estate component is managed by the Port Authority of New York and New Jersey, while the telecommunications component is managed by a partnership between Merrill Lynch and Western Union. The objective of the Teleport is to combine a state-of-the-art telecommunications environment with real estate development to prevent the flight of corporate headquarters from New York City.

The public and private interaction provides a good illustration of how public telecommunications and economic development initiatives are limited by the private nature of telecommunications. In the Teleport project, the Port Authority used its leverage as a public agency to secure the tax abatements from the city of New York which encouraged the project early. Merrill Lynch and Western Union provided the telecommunications expertise vital for success, which the Port Authority lacked.

Although there is no evidence as yet of economic development benefits of the Teleport, the organizations involved are optimistic that the project will prove profitable for the region. There is no evidence that state policy had an impact on the

development of the Teleport. It may be, however, that state inaction in certain areas encouraged private action. New York levies a gross receipts tax on public utilities, which has particularly negative consequences for telecommunications. Local exchange carriers charge interexchange carriers for access to the local loop, meaning access charges are taxed as part of LECs' gross receipts. Interexchange carriers (IXCs), however, pass the access charge onto their customers, meaning the same access charge is taxed again as part of IXC revenue. The result is increased telecommunications costs for New York businesses and consumers. High state taxes could have been behind the private sector's interest in the Teleport and the tax relief the Port Authority was able to secure from the city.

Telecommunications policy in New York has recently become more responsive to economic development concerns due to new state initiatives in economic development under Governor Mario Cuomo. The state Department of Economic Development has completed a major study on the use of telecommunications in economic development. The study, for reasons that are not clear, has not been released. The New York Public Service Commission was one of the first states to authorize intraLATA competition for telecommunications services and recently has taken moves to grant New York Telephone some pricing flexibility. New York's moratorium process gives New York Telephone pricing flexibility for competitive services in exchange for freezing rates for basic services. Although still in early stages, the moratorium process

may result in the end of rate of return regulation and the onset of price caps in the state. The PSC has taken these steps explicitly to promote economic growth, a rarity among state regulatory commissions. At the same time, the PSC has retained its traditional concern for low local rates so as to promote universal service.

California

Telecommunications policy in California presents a picture similar to New York's, although at a much different point in time. Whereas New York's reevaluation of telecommunications policy was the result of the economic troubles of more than a decade, California's reevaluation was due to very recent economic troubles. Only in the 1980s has California's once robust economic growth begun to slow.[9] This has forced a state once extremely protective of ratepayers' interests--indeed before divestiture the California PUC assumed correctly that it could keep rates low because the Bell system would not let Pacific Bell wither--[10] to consider policies encouraging competition that might raise residential rates. At the same time, however, California has shown a sensitivity to the needs of small business and residential customers for new telecommunications technologies. Pacific Bell convened the Intelligent Network Task Force to examine how new technologies could benefit small users. Although sponsored by Pacific Bell, the Task Force worked independently in examining the meaning of universal service on

the presumption that telecommunications service means more than simply access to a dial tone. The Task Force considered consumer uses of the intelligent network in such areas as access to health care, databases, telecommuting, and on-line transactions such as shopping and banking. Although the Task Force's recommendation that all Californians should have access to the intelligent network has yet to be translated into policy, the effort represents a significant initiative not found in the other states studied.

Given that the state's initiatives in telecommunications policy are in the early stages relative to other states, California, like New York, has relied on private initiatives. A major private initiative in California is the Bay Area Teleport, a joint venture between Doric Development, which provides real estate expertise, and Northern Telecom, which provides the telecommunications expertise. Unlike the Teleport in New York, the Bay Area Teleport is not designed to stimulate economic development, but instead to take advantage of growth already occurring. It particularly seeks to take advantage of California's growing trade with Pacific Rim countries, which is a focus of recent state economic development activities.

As in other states, however, economic stagnation has caused California to take a critical look at how telecommunications policy can assist economic growth. The reason California has lagged behind other states in encouraging competition, besides its traditionally strong pro-consumer regulatory policy, is that

the state's economic crisis occurred later than in most states. Recently the California Economic Development Corporation released a study advocating regulatory flexibility for carriers as a way to enhance the economic development potential of telecommunications.[11] The California PUC has recently concluded that some regulatory relaxation is possible in some segments of the telecommunications market, such as intraLATA toll. Increased competition can, the PUC has found, help ensure a technologically advanced telecommunications network for the state.[12]

Florida

If economic crisis has produced state concern for the telecommunications infrastructure, then one might expect economic prosperity to result in relative unconcern by the state for the telecommunications infrastructure. Florida demonstrates the latter point clearly. Rapid growth in the 1970s resulted in excess capacity in the local telecommunications network in the early 1980s. The state's growing population has put this capacity to use, keeping telephone company profits high and, for now, demand for new capital investment low. Local telephone companies have had little need for higher rates, a situation that squares nicely with the PSC's strong policy preference to keep rates down. On the interexchange front, the PSC has recently granted AT&T forebearance from rate of return regulation. In August of 1988, the PSC authorized a forebearance period of three years for AT&T while at the same time capping AT&T rates at

present. In a departure from prior practice, AT&T can now earn beyond the authorized rate without being called in for a rate case. Since forebearance was granted, AT&T rates have fallen in Florida.

The telecommunications policy debate has on balance been quiet in Florida. The state has passed no major telecommunications legislation, although the legislature did pass a bill authorizing shared tenant services after the PSC prohibited STS. The state has not had to question traditional policy tools or the relationship between telecommunications and economic development because of the agreeable telecommunications climate--low local rates and an advanced network.

Other Private Initiatives

The distinction between states which passed legislation and those that did not and instead relied on private initiatives is not perfect. States which passed legislation also have significant private sector initiatives linking telecommunications to economic development. One type of initiative which cuts across several states is the establishment of research institutes on telecommunications. Examples of such initiatives include: Florida's Information Resource Commission and Joint Committee on Information Technology; Virginia's Center for Innovative Technology and; New York's Center for Advanced Technology. New York has also established a high speed data network called NYSERNet linking universities, industrial research labs, and

government facilities within the state. NYSERNet is a not-for-profit effort involving New York state educators, researchers, industrialists, and telephone companies. New York Telephone hopes that NYSERNet serves as a prototype for other high speed data networks.

In Nebraska, the research function has taken a much more applied and public form than in other states. Governor Robert Kerrey, in 1984, established the Nebraska Center for Telecommunications and Information to aid in diversifying the state's economy and to promote economic growth through joint efforts by industry, government, and universities. In California and Washington, academics have taken the initiative, with state encouragement, in telecommunications policy research. Motivated in part by Washington's ailing rural economy, Washington State University sociologist Donald Dillman has explored ways in which telecommunications can stimulate rural development. As part of California's Vision 2010 project, the state asked University of California-Berkeley Professor Robert Harris to consider what the appropriate telecommunications policy is for the state's present and future economic needs.

The economic development divisions within BOCs represents another private initiative. Seventeen of the 22 BOCs have economic development divisions, dating from 1978 when Illinois Bell established the first such division. The BOCs in the nine states in this study all have economic development divisions, with varying degrees of prominence within the states. Perhaps

the most prominent BOC economic development division is the oldest, Illinois Bell's. Illinois Bell has established economic development entities in various regions within the state, seeking to tap into the economic power structure of the regions as a way to foster business expansion, retention, and recruitment. The goal is to increase revenues for Illinois Bell by maintaining a healthy economy within the state. In Washington, Pacific Northwest Bell's economic development division has successfully used a strategy similar to Illinois Bell's to assist a Japanese firm acquire and rejuvenate a business that had been slated for closing in an economically depressed community.

The existence of so many private telecommunications and economic development initiatives is doubtless a reflection of the private sector's excellent record in providing telecommunications services in this country. The only pattern that emerges from the study of private initiatives is the rather haphazard nature of public and private interaction in this area. Most of the states in this study have limited joint projects to those benefitting businesses. Given states' concern with business expansion and retention, this orientation is understandable. One wonders, however, if this orientation has distracted states from other initiatives which might help the broader public.

The State as a User

Just as many large users in the private sector have upgraded their telecommunications systems in recent years, so have many

states. States have purchased new telecommunications systems both to improve internal administration of state agencies and the quality of the delivery of state services. The strategies states have employed in encouraging innovation in service delivery using telecommunications vary greatly and defy neat categorization. A few examples of innovative uses of telecommunications in service delivery should highlight the increasing importance of telecommunications to state operations.

In California, there have been a number of initiatives at the state and local level using telecommunications to improve government operations and service delivery. The state is currently experimenting with telecommuting for employees in Sacramento and the Southern California Association of Governments has initiated another telecommuting experiment. Both programs are designed to ease traffic problems and thus alleviate growing pressure on California's transportation infrastructure. In Los Angeles, the state and Pacific Bell have started a project called JobLink Watts. This program uses telecommunications technology for job training of the chronically unemployed in the depressed Watts area.

Florida is another state which has used telecommunications to improve service delivery. The most prominent effort has been undertaken by the Department of State (DOS), which provides remote access to public records. Known as Public Access DOS, this system replaces the walk-in and call-in method which was becoming increasingly cumbersome and costly for state employees

to operate. With the public able to gain access to public records with a terminal and a modem (the state selected CompuServe as the public data network), not only are more user requests answered, but the usage charge for access has converted the DOS' public information operations from a revenue drain for the state into a revenue generating operation.

Unlike Florida, which has used telecommunications to perform an old state function more effectively, Nebraska is using telecommunications to provide new state services in conjunction with the state university. Nebraska's AGNET program provides farmers access to a database which gives information on market prices and futures, weather conditions, and scientific agricultural information. AGNET was originally developed in 1975 by University of Nebraska professors who wanted their students to gain experience in programming. Subsidies from the state have provided the resources to expand access to the network beyond the University of Nebraska campus. Today the largest class of users are farm producers, agribusiness, and educational institutions, with producers comprising the fastest growing user group. The state also provides network support for the system. Nebraska's Department of Administrative Services is continually upgrading the AGNET's operating system to improve reliability and convenience for clients.

Perhaps the most widely discussed state use of telecommunications for service delivery is in education. This is not surprising given that education has become a prominent item

on state agendas in recent years. States have been active in education reform in part as a way to spur economic development and telecommunications has been used by some states to gain an edge in education. In Vermont, for example, the state has developed the Vermont Interactive Video Link which connects the Vermont Technical College to a vocational center in Newport, a town in the most rural part of the state. IBM funded the study that preceded this project, which has served as a pilot for other long-distance education projects in the state which use telecommunications. Corporations such as IBM, General Electric, and Vermont Yankee Nuclear Power Plant hope such an educational system will provide them a technically trained labor pool within the state. Although the state has not decided whether to fund a larger educational effort using telecommunications (the cost for such a system is estimated to be $10.8 million over six years), its early efforts indicate a willingness to use the telecommunications network to improve the state's educational system.

Texas is using telecommunications in its educational system to improve operating efficiency, to train pupils, and to provide in-service training to teachers and administrators. The Texas Education Agency (TEA) uses the Electric Pages, a national education network established by a private firm, to exchange information with local education agencies. The TEA has also established its own network, called TEA-NET, to communicate with local agencies. Not only should TEA-NET improve communication

between the state and localities, but it should also cut down on mailing costs considerably. The state also uses a privately-operated satellite-based network called TI-IN to deliver teaching services to rural school districts. Rural districts unable to hire a sufficient number of teachers can use the network for instructional programming and for in-service training.

There are a great many more examples of states using telecommunications to deliver traditional services better or deliver entirely new ones. Not only are there great numbers of uses of telecommunications within states, but also a great variety of uses--agriculture, welfare, prison systems, job training, and more. Despite the variety, two generalizations can be made about state uses of telecommunications. First, states are using telecommunications to decentralize access to information. States are using networks to provide information directly to the people in all parts of the states--farmers, school children, unemployed workers, or businesses who want access to state records. It is less necessary for people to be in state capitals or large cities to get access to state information.

Second, state agencies are undertaking these initiatives independently from state telecommunications policymakers. Agencies using telecommunications and public utility commissions, for the most part, do not communicate. Even in states with sophisticated telecommunications planning operations, such as Texas' Automated Information and Telecommunications Council

(AITC), state agencies are just another customer in the eyes of the PUC. The AITC's plan to develop a state system that can migrate to ISDN technology suggests a role for coordination between the PUC and the AITC. If the state plans to use ISDN for service delivery, it will be practically necessary for the public network to have ISDN capability. This raises the policy issue of whether or how the PUC PUC should encourage telephone companies to invest in ISDN for the public network. Alternatively, the state might directly subsidize investment in ISDN or purchase of such technologies for certain classes of users. Although this is a hypothetical example, it illustrates the potential benefits of coordination between the state as a user of telecommunications and the state as the telecommunications policymaker.

CONCLUSION: IMPLICATIONS OF POST-DIVESTITURE STATE POLICY

At the root of the variety of recent state initiatives in telecommunications policy is the growing obsolescence of traditional policy tools. Rate-of-return regulation, which grew at a time when telephone service was a natural monopoly provided by the Bell System, no longer is appropriate. This system of regulation came to rely on policymakers devising tortuous cross-subsidies through a single corporate structure to ensure wide availability of one service--access to the dial tone. That corporate structure does not exist any longer, nor does the monolithic nature of telephone service. There are a great many more telecommunications services available today than just the

dial tone. The diversity of state responses in this new environment reflects experimentation with new policy tools. As identified at the outset of this paper, these responses fall into three categories: new legislation, targeted initiatives, and the state as a user of telecommunications services.

Yet within the great variety of state responses lies a trend toward competition. States are converging on pro-competitive telecommunications policies, albeit at different rates. California, for example, which resisted pro-competitive policies immediately after divestiture, is beginning to take steps to encourage competition. Part of their motivation for this is a realization of the economic benefits of an advanced network and the fear that other states' initiatives to encourage competition would make California a less attractive place to do business.

As we observe the convergence on pro-competitive telecommunications policies in states, it is important to reiterate the motivation for such policies--to keep large businesses on the network. Thus far, pro-competitive policy has been defensive, which is to say it has sought to minimize bypass of the local network by large users. Telecommunications policymakers, in this defensive posture, have complied with the wishes of the telecommunications industry, which realized long ago that the industry would have to be more responsive to large users than to small users in an increasingly competitive market.[13] In a competitive environment, large users prompt telecommunications companies to innovate; small users are

neglected.[14]

States' emphasis on competition, regardless of its acquiescence to the interests of large users, is both well-placed and unavoidable. The federal government, after years of gradually permitting competition in the long-distance market, undid the industrial structure which enabled state regulation, with its reliance on cross-subsidies, to continue almost undisturbed. The break-up of AT&T meant states could no longer mandate the transfer of resources within the Bell System to keep local rates low. States have therefore turned to the "least worst off" theory to keep local rates low. They have let local exchange carriers compete in the business market in order to maintain the financial health to serve residential users at reasonable rates. Again, this has been a wise, almost unavoidable course, to follow.

But this is not to say that we should not consider the consequences of such policy. The consequence of letting only market demand drive innovation may be the development of two networks in this country of very different quality. One network might be very sophisticated for large business users and will have developed because these users have demanded it. More competition and less regulation have proved instrumental thus far to develop this network, because market entry has spurred innovation among providers. One measure of the sophistication of America's interexchange infrastructure, is the number of

exchanges which are to digitally switched. AT&T has 95 percent of its exchanges digitally switched; for MCI the number is 80 percent.[15] In France, 60 percent of the interexchange switches are digital, while West Germany has barely begun to digitize.[16] The Japanese also lag behind the U.S. in installing digital switching.[17]

The other network, the local exchange network, may be much less sophisticated. The Bell Operating Companies, providers of 80 percent of local exchange service in this country, have installed digital switching in only 20 percent of their exchanges. This compares with 50 percent digital switches in local exchanges in France.[18] Note the disparity in digital switching in the two countries at the inter- and local exchanges. France has 60 and 50 percent digital switching at inter- and local exchanges respectively, while the same figures for the U.S. are 80 and 20 percent.[19]

The three state responses to changes in the telecommunications industry--new legislation, targeted initiatives and the state role as a user--may further encourage the development of a two-tiered network. New legislation, by promoting competition, has encouraged providers to be responsive to the most competitive segment of the market, namely the market for large business services. Most of the targeted public and private initiatives, such as teleports in New York and California, have similarly been oriented to large users. Although the state role as a user of telecommunications holds the

promise of responsiveness to small users, there is little evidence of such responsiveness thus far. Even as states decentralize access to information and services, direct access requires that the user have technology that only large users can generally afford. On balance, then, the sum of the three state responses has been to favor access to new technologies for large users.

There are two reasons why small users could benefit from having access to these advanced technologies. The first has to do with the changing structure of the American economy. As industries based on mass-production becomes less competitive, production processes must become more flexible.[20] Techniques such as batch production--meaning small production runs of customized products--becomes more important to the economy. Roughly 75 percent of all batch production in this country takes place in production runs of 50 or less and increasingly in small firms.[21] The competitive success of these customized products frequently depends upon effective communication with both suppliers and customers. If small firms do not have access to advanced telecommunications technology, they will be at a disadvantage relative to firms in other countries, such as Japan and France, which do. Indeed, small firms frequently lack the resources to invest in communications and data retrieval systems which would enable them to keep abreast of technological and market developments.[22]

The second small business benefit of advanced technology has

to do with how states are using telecommunications in service delivery. As states increasingly provide services such as education, job training, welfare, and agricultural information over the telecommunications network, users will need access to the technologies with which to receive those services. States such as Texas, which plan to migrate to ISDN, will need a public ISDN network for all citizens to have equal access to state services. Because government service delivery is not a market function, states may have to provide citizens with advanced technologies (perhaps in some cases computer terminals, like France's Minitel) in advance of market demand. Provision of advanced technologies may not only improve service delivery, but create unforseen benefits as users have access to information services that only large users (already equipped with technology) could previously afford.

One might argue that competition will eventually solve these problems. If states set more realistic depreciation rates for local exchange carriers, the carriers will be able to upgrade exchanges serving residences to digital switching, enabling those customers to have access to new services. Yet given telephone companies' understandable desire to compete in the business market, such upgrading is likely to occur later rather than sooner. And there are uses of advanced telecommunications technology that are emerging, such as delivery of state services, that occur outside the market framework. There are also likely to be "network externalities,"[23] meaning that the value of the

network increases as the number of individuals connected to it increases. Such externalities may generate unforseen benefits as individuals develop creative uses of technologies. To promote these uses, government assistance may be necessary to small users. It is important to realize, however, that this type of government role in telecommunications policy is likely to occur outside the regulatory framework.

In the future, then, state telecommunications policy is likely to lie beyond the debate over rate of return regulation and the degree of flexibility telecommunications providers need. Certainly regulatory matters will continue to occupy the attention of policymakers and rightly so.[24] As the BOCs and AT&T are given greater latitude to compete in the marketplace, regulators must guard against abuse of the market power these companies still have. But states seem to be approaching a stage at which telecommunications policy must examine broader issues--such as to which technologies citizens should have access. Moreover, as states increasingly use telecommunications to deliver services like welfare, job training, and education, there will be a need for citizens to have access to the technologies states use to deliver services.

As states begin to address the telecommunications technology needs of a broader population than just business users, a role for regional cooperation may emerge. In California, for example, the Southern California Council of Governments is beginning to experiment with telecommuting in the hope that this will ease

traffic problems in the area. For telecommuting to be successful on a broad scale, a fully integrated network will have to be available to residential users. If telecommuting is to have any success in Eastern cities such as New York, Philadelphia, or Washington, an advanced network will have to be available in a number of states. Coordination of policy among states, in this case, will be vital to the success of one state's efforts to promote telecommuting. Similarly, if on-line transactions such as banking or shopping are to be successful, a maximum number of individuals connected to the network will increase the value of the system to the bank or merchant. A region which makes new technologies widely available to all users may reap the economic benefits associated with telecommuting, on-line banking and shopping, and other new uses of the network.

From the point of view of telecommunications companies, regional cooperation would also have benefits. Take the example of the introduction of a new service, such as AT&T's Software Defined Network (SDN) service. SDN was AT&T's competitive response to the growth of private networks built by large business users. Some states were slow to approve SDN for fear that it would encourage further bypass of the local network and therefore rate increases for consumers. Although some states did approve SDN quickly, this was of little comfort to users who needed their network to extend from a jurisdiction that had approved the service to one that had not. Approval in one state but not in others reduced the value of the service to customers.

If one believes that allowing AT&T to compete in the growing market for private networks will create benefits (such as price reductions or improvements in quality) that generate additional economic growth, then lack of regional cooperation can hurt more than just telecommunications providers.

Two points emerge about the telecommunications infrastructure. First, it is a network that is valuable in so far as people are connected to it. Second, it is a network that does not respect the political boundaries of states or even countries. There is clearly a role for regional cooperation to ensure more people have access to a high quality network. Yet there are reasons why regional cooperation in telecommunications is less likely to gain the attention among policymakers that environmental or natural resource issues might. First, there is no crisis in telecommunications. Much of the discomfort caused by divestiture (such as difficulties in ordering service) has subsided and the public has either ceased to be confused by their phone bills or become accustomed to them. This country still has reliable telephone service and subscribership rates remain high. Second, a poor telecommunications infrastructure (something we do not have) is not likely to produce the kind of public outcry that medical waste washing up on the beaches, water shortages, and even acid rain do. Finally, the complexity of telecommunications policy issues make generating public interest difficult. In Illinois, for example, the public remained quiet in the face of rising telephone rates following divestiture, concentrating their

attention on the state's high electric rates. One reason cited for public apathy over phone issues was the sheer complexity of telephone regulation.[25]

The lack of crisis in telecommunications policy does not reduce the very real benefits states could gain from regional cooperation and from ensuring that small users have access to new technologies. The benefits of providing advanced telecommunications technologies to the public are not foreseeable, but this should be no impediment to making such investments for society. Businesses are making investments in ISDN technology based on the belief that their employees will use ISDN creatively, not only on quantified cost savings and efficiency improvements.[26] States must adopt similar attitudes about the telecommunications infrastructure. Given that much of our future economic growth depends on advanced telecommunications technology, states must step in where the market fails to ensure universal access to new technologies.

At this point, however, there is only scattered evidence of states acting to encourage the availability of new technologies to residences and small businesses. California's Intelligent Network Task Force represents an initial attempt, but its efforts have not yet been translated into policy. Much discussion of telecommunications policy at the state level still focuses on regulatory issues, even though the policy debate broadened to include legislators and governors following divestiture. Among the challenges facing state telecommunications policymakers in

the future is to develop the policy tools with which to make new technologies broadly available to the public.

NOTES

1. See Marianne K. Clarke, Revitalizing State Economies: A Review of State Economic Development Policies and Programs (Washington, D.C.: National Governors' Association, 1986).

2. The authors of this paper, along with eleven other graduate students at the University of Texas at Austin, conducted field research for the forthcoming volume by Jurgen Schmandt, Robert H. Wilson, Frederick Williams, eds., Telecommunications and Economic Development: The New State Role (New York: Praeger Press, forthcoming).

3. Gerald Faulhaber, Telecommunications in Turmoil: Technology and Public Policy (New York: Ballinger Press, 1987), p. 6.

4. See Faulhaber, Telecommunications in Turmoil, p. 144, and Roger Noll, "States Regulatory Responses to Competition and Divestiture in the Telecommunications Industry," in Ronald E. Grieson, ed., Antitrust and Regulation (Lexington, MA: D.C. Heath and Co., 1986), p. 181-82.

5. Faulhaber, Telecommunications in Turmoil, p. 144.

6. Walter G. Bolter, ed., Telecommunications Policy for the 1980s: The Transition to Competition (Englewood Cliffs, NJ: Prentice Hall, 1984), p. 156-57.

7. Telephone Competition and Deregulation: A Survey of the States (Washington, D.C.: National Telecommunications and Information Administration, 1986), p. 5.

8. Johnnie L. Roberts, "Tough Operator: Demanding Further Deregulation, U.S. West is Accused of Applying Undue Pressure," Wall Street Journal, September 14, 1987, pp. 1, 12.

9. R. Scott Fosler, The New Economic Role of American States: Strategies in a World Economy (New York: Oxford University Press, 1988), p. 218.

10. Peter Temin, The Fall of the Bell System: A Study in Prices and Politics (New York: Cambridge University Press, 1987), p. 145.

11. Robert Harris, California Telecommunications Policy for the Twenty-First Century, A Report to the California Economic Development Corporation, (Berkeley, CA: University of California, 1987), pp. 39-42.

12. California Public Utilities Commission, Competition in Local Telecommunications: A Report to the Legislature (San Francisco, May 1987).

13. This was the reason for AT&T's corporate reorganization of 1978. See Temin, The Fall of the Bell System pp. 168-69.

14. Francois Bar and Michael Borrus, From Public Access to Private Connections: Network Policy and National Advantage (Berkeley, CA: Berkeley Roundtable on the International Economy, 1987), p. 24.

15. "Telecommunications Survey," The Economist, October 17, 1987, p. 12.

16. Ibid. p. 31.

17. Michael Borrus, Francois Barre, Patrick Cogez, Ann Brit Thoreson, Ibraham Warde, and Aki Yoshikawa, Telecommunications Development in Comparative Perspective: The New Telecommunications Infrastructure in Europe, Japan, and the U.S., (Berkeley, CA: Berkeley Roundtable on the International Economy, May 1985), p. 17.

18. The Economist, October 17, 1987. p. 31.

19. The 80 percent figure is rough estimate gathered from figures in The Economist, October 17, 1987. AT&T has 75 percent of the market and 95 percent digital switching in its exchanges. The figure for MCI are 15 and 80 percent. A weighted average yields the 80 percent estimate.

20. See Robert B. Reich, The Next American Frontier (New York: Basic Books, 1983); Charles Sabel and Michael Piore, The Second Industrial Divide (New York: Basic Books, 1984); and Robert U. Ayres, The Next Industrial Revolution (New York: Ballinger Publishing, 1984).

21. Steven Cohen and John Zysman, Manufacturing Matters: The Myth of the Post-Industrial Economy (New York: Basic Books, 1987), p. 171.

22. Roth Rothwell and Walter Zegveld, Industrial Innovation and Public Policy: Preparing for the 1980s and 1990s (Westport, CT: Greenwood Press, 1981), p. 181.

23. See Bar and Borrus, From Public Access to Private Connections for a discussion of network externalities.

24. For example, the ability of telecommunications companies to modernize the telecommunications network depends greatly on the depreciation rates set by state regulatory commissions. These

rates are frequently set at unrealistically low levels to keep telephone rates down. If the quality of the telecommunications infrastructure gains greater policy prominence, this is one part of the policy debate that remains in the realm of regulation.

25. See John Horrigan and Darren Rudloff, "Illinois" in Schmandt, Williams, Wilson, Telecommunications and Economic Development: The New State Role.

26. Interviews with several Texas-based firms currently implementing ISDN who asked that we not identify them.